

REMARKS

This application has been reviewed in light of the Office Action mailed on March 30, 2004. Claims 1-8 are pending in the application with Claims 1 and 7 being in independent form. By the present amendment, Claims 1 and 4-8 have been amended and Claims 2-3 have been cancelled. Claims 5, 6 and 8 have been amended to place them in better form, such as changing “characterized by” to “wherein—”. No new matter or issues are believed to be introduced by the amendments.

(1) In the Office Action, the drawings are objected to because figures 1-4 need to contain a text label as well as a numerical label. Applicant acknowledges the Examiner’s request but respectfully declines to add the text labels as suggested. Withdrawal of the objection is respectfully requested.

(2) In the Office Action, the abstract of the disclosure was objected to for having improper language and format. By means of the present amendment, the current Abstract has been amended as shown in the enclosed Replacement Abstract in a manner which better conforms to U.S. practice and is believed to overcome the objection. Withdrawal of the objection is respectfully requested.

(3) In the Office Action, the Specification was objected to for failing to include section headings. Applicants respectfully declines to add the headings as they are

not required in accordance with MPEP §608.01(a) and requests withdrawal of the objection to the specification.

(4) In the Office Action, Claims 1-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,360,080 issued to Yun et al. on March 19, 2002 (“Yun et al.”) in view of U.S. Patent No. 6,069,912 issued to Sawahashi et al. on May 30, 2000 (“Sawashashi et al.”). In response, the limitations of Claims 2 and 3 have been incorporated into Claims 1 and 9, respectively. It is respectfully submitted that Claim 1 as amended and new Claim 9 are patentable over Yun et al. in view of Sawahashi et al for at least the following reasons.

In the Office Action, Yun is cited for disclosing various elements of transmitting a dual code spread spectrum signal in a transmit diversity communication system and Sawahashi is cited for disclosing various elements of receiving the dual code spread spectrum signal in the transmit diversity communication system.

As stated above, independent Claim 1 has been amended herein to include the limitations of Claim 2 which relate to aspects of receiving the dual code spread spectrum signal in the transmit diversity communication system. It is respectfully submitted that Claim 1, as amended, is not disclosed by the cited references, alone and in combination..

Claim 1 as amended herein recites in part:

....wherein said combiner comprises:
means for selecting a signal in one of said branches as a reference signal,
means for co-phasing the carrier signals in each of the respective branches with the reference signal,...

The reference signal is applied to a second look-up table which produces a corresponding output which is used by the controller to generate the real weighting factor $D_N(t)$. This real weighting factor $D_N(t)$ is applied to the second phase shifters as a phase control voltage which co-phases the respective received carrier signals to the selected reference signal. As may or may not be obvious, the weighting factor $D_l(t)$ for the branch identified to have the reference signal will be zero in that it is already co-phased with itself.

Sawahashi is silent with respect to *selecting a signal in one of said branches as a reference signal and co-phasing the carrier signals in each of the respective branches with the reference signal*. Sawashi employs conventional Rake receiver techniques (see Col. 7, line 5) which is relatively complex and expensive making it unsuitable for low cost applications which is a stated objective of the present invention. Sawahashi is further distinguishable from the present invention, by virtue of using “absolute coherent detection”, as recited in Sawahashi at Col. 8, lines 22-34:

The summed up signal is fed to the phase fluctuation estimator 206 that estimates its received phase used for the "absolute coherent detection". Specifically, it estimates the received phase of the fading received waves using the pilot symbols PS of a known pattern which are periodically inserted into the transmitted frame (whose structural example is illustrated in FIG. 3), and further estimates the received phase fluctuations of the individual information symbols IS due to fading by interpolating the received phase of the pilot symbols PS at both sides of the information symbols, thereby compensating for the received phase fluctuations by the phase fluctuation compensator 207 (in FIG. 2).

Estimating the received phase of the fading received waves using pilot symbols of a known pattern, as taught in Sawahashi, is clearly distinguishable from the technique of the present invention, as recited in Claim 1.

For at least the reasons given above, the cited references taken alone or in combination do not disclose or suggest Applicants' combiner as claimed by Claim 1. Accordingly, Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 1 and allowance thereof.

Claims 2-6 which depend on independent Claim 1 are believed to be in condition for allowance for at least the same reasons given for Claim 1 above. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 2-6 and allowance thereof are respectfully requested.

With respect to Claim 7, for at least the reasons stated above with respect to Claim 1, it is submitted that the cited references, alone and in any proper combination, do not teach or disclose *the antenna diversity means comprising a plurality of branches and means for co-phasing the signals in all but one of the branches with the signal in the one of the branches*

Accordingly, Applicants respectfully request the withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 7 and allowance thereof.

Claim 8 which depends on independent Claim 7 is believed to be in condition for allowance for at least the same reasons given for Claim 7 above. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 8 and allowance thereof are respectfully requested.

Independent claim 9 has been added to better define Applicants' invention and to overcome the rejection. Claim 9 combines the limitations of Claim 1 and Claim 3.

It is respectfully submitted that Sawahashi does not teach or disclose means for selecting the branch having a minimum phase deviation with respect to the local oscillator frequency and treating that signal as a reference signal. Sawahashi discloses at Col. 6, lines 44-62:

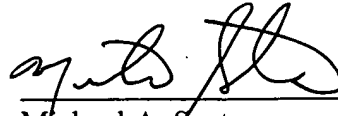
a phase error estimation compensator for estimating received phase error of each information signal by interpolation of the received phase of the pilot signal of a known pattern which is included in the frame in the output sequence from the adder, thus to compensate the received phase error; a decision portion for making decision of the signal which has undergone the phase error compensation signal by symbol by the phase error estimation compensator; an error vector generator for generating the error vector between a received signal vector after the phase error compensation and a signal vector after the decision; a phase fluctuation estimation multiplier for multiplying the error vector generated by the error vector generator by the phase fluctuation estimate estimated by the phase error estimation compensator; and a complex weighted coefficient controller for obtaining complex weighted coefficients of the individual antennas such that the mean square error of the multiplier becomes minimum.

Accordingly, applicant respectfully submits that independent claim 9 be allowed.

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1 and 4-9, are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Dicron Halajian, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-333-9607.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Michael A. Scaturro', written over a horizontal line.

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